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NOTICE OF ALLOWANCE AND FEE(S) DUE

22879 7590 11/04/2008

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

DUONG, THOMAS

ART UNIT

PAPER NUMBER

2445

DATE MAILED: 11/04/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/723,041

11/26/2003

Bruce Edward LaVigne

200311029-1

7830

TITLE OF INVENTION: REMOTE MIRRORING USING IP ENCAPSULATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	02/04/2009

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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P.O. Box 1450
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

22879 7590 11/04/2008

**HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400**

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,041	11/26/2003	Bruce Edward LaVigne	200311029-1	7830

TITLE OF INVENTION: REMOTE MIRRORING USING IP ENCAPSULATION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	02/04/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUONG, THOMAS	2445	709-245000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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FORT COLLINS, CO 80527-2400

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 800 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 800 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	10/723,041	LAVIGNE ET AL.	
	Examiner	Art Unit	
	Thomas Duong	2445	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to June 30, 2008.
2. ☒ The allowed claim(s) is/are 1-12, 14-23, and 25-28.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
|---|--|

/Jason D Cardone/
Supervisory Patent Examiner, Art Unit 2445

DETAILED ACTION

Response to Arguments

1. The Applicants' arguments and amendments filed on June 30, 2008 have been fully considered and are persuasive.

Allowable Subject Matter

2. *Claims 1-12, 14-23, and 25-28 are allowed. The claims indicated include limitations that the prior arts of record do not appear to teach or render obvious, hence they are allowed.*
3. The following is an examiner's statement of reasons for allowance:

As presented in the previous Office Action, Bussiere (US006041042A) discloses, "FIG. 2 illustrates, by way of example, part of a network system in which a source device is monitored by a remote analyzer. The source device is referred to as an ingress device 15 for so long as the device is being monitored, and can be any one of the network communication devices (e.g., devices 1-4, 6 and 9 in FIG. 1). Ingress device 15 may have multiple ports through which packets may be received and sent. In FIG. 2, port 13 has been selected as the port to be monitored. Thus, in this example, device 15 is the ingress device and port 13 is the "mirror-from-port." A "mirror-to-port" 14 is the out port on ingress device 15 that is on a path 12 set up through the connection-oriented network 10 to the egress device 18. All packets received and sent by the port 13 are also copied and transmitted through the network 10 to analyzer 5, located off analyzer port 11 of

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egress device 18. The "egress device" is the device on the network that is used to monitor the mirror-from-port 13 on the ingress device 15. Any device may be selected as the egress device" (Bussiere, col.4, line 66 – col.5, line 17). Hence, Bussiere teaches of the ingress device 15 (i.e., Applicants' entry device) receiving packets (i.e., Applicants' data packet) that are being monitored through port 13 (e.g., "mirror-from-port") (i.e., Applicants' to be monitored) and transmitting them through "mirror-to-port" 14 to the egress device 18 (i.e., Applicants' remote mirrored device). Bussiere discloses, "In step 41, a port on a device in the network is selected to be monitored (i.e., a device is designated as an ingress device). Special hardware (and/or software) is set-up in the ingress device (e.g., 15), defining one port (e.g., port 13) as the "mirror-from-port" and one port (e.g., port 14) as "mirror-to-port". In step 42, frame encapsulation logic (e.g., 15') is set up in the ingress device (e.g., 15). In step 43, a path, (e.g., path 12), is set-up from a specific out-port of the ingress device (e.g., "mirror-to-port" 14) through the trunk devices (e.g., 16 and 17) to the egress device (e.g., 18)" (Bussiere, col.6, lines 41-50). Hence, Bussiere teaches of the ingress device (e.g., "mirror-to-port" 14) (i.e., Applicants' entry device) is set up (i.e., Applicants' configured) with a path through the use of source and destination addresses (i.e., Applicants' destination IP address) so that data is forwarded to the egress device (i.e., Applicants' destination which mirror the data packet, remote exit device).

Also presented in the previous Office Action, Amara et al. (US006839338B1) discloses, *"IP can be used to send data between devices on the same network and between devices on different networks. For IP communications, a device is generally assigned a 32-bit IP address. The IP address is generally globally unique across the connected networks, and this allows the destination device to be uniquely identified by its IP*

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address. Data is transmitted in an IP packet. The IP packet includes a header portion and a data portion" (Amara, col.3, lines 31-38). Amara discloses, *"The virtual tunnel 126 can be created by encapsulating a data packet inside another data packet and by adding additional tunnel packet headers"* (Amara, col.6, lines 43-45). Hence, Amara implies of IP encapsulating data packets using IP headers and transmitting them to the destination based on the destination IP address of the IP header through devices on different networks.

Also presented in the previous Office Action, Zhang et al. (US006985935B1) discloses, *"Once the Layer 2 tunnel is setup and a necessary link is established, the LNS typically assigns an IP address to an authenticated client, and sends it to the network access device over the Layer 2 tunnel. The network access device receives the IP address and transfers it to the client (129)."* (Zhang, col.9, lines 20-24). Hence, Zhang teaches of communicating between networks through layer 2 encapsulation.

Also presented in the previous Office Action, Ni (US007042843B2) discloses, *"The issue then becomes how does a system manage the scheduling of the transmission of the packets so that no voice or video transmission interval violation occurs and no best effort starvation occurs. An embodiment of the invention addresses this issue by providing a method to restrict the total number of active class of services (flows) for voice and video packets so that 1) the maximum wait time for any port's voice/video queue is less than or equal to the maximum transmission interval (i.sub.m), 2) the process of interleaving voice, video and best effort traffic does not delay the transmission of the next voice/video packet transmit time, and 3) the process does not starve the video and best effort traffic for service"* (Ni, col.7, lines 17-29). Hi discloses, *"HOL blocking is a phenomenon that may occur in an input buffered switch wherein a packet is temporarily blocked by*

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another packet or packets either at the input buffer or at the output buffer. HOL reduces the effectiveness of the transfer rate. One of the objectives of flow control is to inhibit the sending station or host from sending additional packets to a congested port for a predetermined amount of time. While a flow control scheme is expected to ease congestion, it may also aggravate the Head-of-Line (HOL) blocking problem by causing additional transmission delays" (Ni, col.7, lines 7-16). Hence, Ni teaches of utilizing best effort transmission method among others to avoid that starvation of best effort traffic for service and reducing the head-of-line (HOL) blocking and congestion problems.

However, the prior arts of record fail to teach or suggest individually or in combination as stated in the independent claims for *"the entry device is pre-configured with a destination Internet Protocol (IP) address to which to mirror the data packet"* and *"configuring the entry device in a best effort mirroring mode to reduce head-of-line blocking"* and in combination with other limitations as set forth in the independent claims, as well as

Applicants' arguments presented on pages 8-12 of the After Non-Final Amendment filed on June 30, 2008. In the fore mentioned amendment, the Applicants argued,

"Therefore, none of the cited references, either alone or in combination, disclose or suggest the claim element that "the entry device is pre-configured with a destination Internet Protocol (IP) address to which to mirror the data packet" (emphasis added)" (pg.9) and *"Col. 7, lines 17-29 of Ni recites "best effort starvation" (emphasis added).*

Applicants respectfully submit that the discussion in Ni in relation to best effort starvation does not disclose or suggest the claimed best effort mirroring mode. In fact, the Ni reference does not even pertain to mirroring. Rather, Ni pertains to "a method for prioritizing packet flows within a switching network." (Abstract.) Therefore, none of the cited references, either alone or in combination, disclose or suggest the claim element of

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"configuring the entry device in a best effort mirroring mode to reduce head-of-line blocking" (emphasis added)" (pg.10).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Duong whose telephone number is 571/272-3911. The examiner can normally be reached on M-F 7:30AM - 4:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason D. Cardone can be reached on 571/272-3933. The fax phone numbers for the organization where this application or proceeding is assigned are 571/273-8300 for regular communications and 571/273-8300 for After Final communications.

/Thomas Duong/

Patent Examiner, Art Unit 2445

November 1, 2008

/Jason D Cardone/
Supervisory Patent Examiner, Art Unit 2445